

Claims

1. An ink supply unit for an ink jet recording apparatus, having a membrane valve which includes at its periphery a thick portion supported by a valve seat constituting member and a thin portion having an ink passing port in a center, which is pressed at the ink passing port against a valve seat, and which comes into contact with or separates from the valve seat correspondingly to a differential pressure of ink, wherein an angled portion that is concentric with respect to the ink passing port is formed in the central region of the thin portion of the membrane valve.

2. An ink supply unit for an ink jet recording apparatus, having a membrane valve which includes at its periphery a thick portion supported by a valve seat constituting member and a thin portion having an ink passing port in a center, which is pressed at the ink passing port against a valve seat by elasticity applying means, and which comes into contact with or separates from the valve seat correspondingly to a differential pressure of ink, wherein the thin portion of the membrane valve is formed as an approximately flat surface, and plural protruding rib portions radially extending from the ink passing port and located at regular intervals are formed.

3. The ink supply unit for an ink jet recording apparatus according to claim 1 or 2, wherein the membrane valve is arranged in a flowing passage connecting an ink cartridge and an ink jet recording head.

4. The ink supply unit for an ink jet recording apparatus according to claim 1 or 2, wherein the membrane valve is arranged in an ink container detachably attached to a flowing passage for supplying ink to an ink jet recording head.

5. The ink supply unit for an ink jet recording apparatus according to claim 1 or 2, wherein the vicinity of the periphery of the ink passing port is pressed against the valve seat by the elasticity applying means.

6. A membrane valve of an ink supply unit for an ink jet recording apparatus, which includes at its periphery a thick portion, a thin portion supported by a valve seat constituting member through the thick portion, and an ink passing port in the center of the thin portion, and which comes into contact with or separates from a valve seat at the ink passing port correspondingly to a differential pressure of ink, wherein an angled portion that is concentric with respect to the ink passing port is formed in the central region of the thin portion.

7. A membrane valve of an ink supply unit for an ink jet recording apparatus, which includes at its periphery a

thick portion, a thin portion supported by a valve seat constituting member through the thick portion, and an ink passing port in the center of the thin portion, and which comes into contact with or separates from a valve seat at the ink passing port, correspondingly to a differential pressure of ink, wherein the thin portion is formed as an approximately flat surface, and plural protruding rib portions radially extending from the ink passing port and located at regular intervals are formed.

8. The membrane valve of an ink supply unit for an ink jet recording apparatus according to claim 6 or 7, wherein a region with which elasticity applying means comes into contact is formed in the vicinity of the ink passing port.